

I. AMENDMENTS

For the convenience of the Examiner, all pending claims of the present application are shown below in clean form whether or not an amendment has been made. Please refer to the attached sheet showing a mark-up version of the amendments to the claims.

IN THE CLAIMS

1. (Amended) A system for directing a selected light beam to at least one light beam receptor, said system comprising:

an array of stationary optical fibers, each one of said stationary optical fibers constructed and arranged to conduct one of a plurality of light beams including the selected light beam;

an optical switch fabricated on a substrate, the switch having an array of movable reflective surfaces, and having a single thermal actuator associated with each reflective surface, each thermal actuator comprising a cantilevered arm having a fixed end attached to the substrate and a free end to which the reflective surface is attached, the arm being made from a material having a thermal expansion property, and the arm having a top surface and a bottom surface with a layer of material having a different thermal expansion property on a portion of at least one of these surfaces;

wherein each reflective surface is attached such that it is substantially perpendicular to the substrate.

Please cancel Claim 2 without prejudice or disclaimer.

Please cancel Claim 3 without prejudice or disclaimer.

4. (Amended) The system of Claim 1, wherein the cantilevered arm has an air gap between its top and bottom surfaces.

5. (Amended) The system of Claim 1, wherein each cantilevered arm is made from a material selected from the group of single crystal silicon, polycrystalline silicon, silicon dioxide, or silicon nitride.

A2 6. (Amended) The system of Claim 1, wherein the arm has a layer on each of the top and bottom surfaces and these layers have the same thermal expansion property.

7. (Amended) The system of Claim 1, wherein the arm has a layer on each of the top and bottom surfaces and these layers have different thermal expansion properties.

8. (Amended) The system of Claim 1, wherein the layers are made from a metallic material.

9. (Amended) The system of Claim 1, wherein each cantilevered arm is spaced from the substrate by means of an extension of the arm extending substantially vertically from the substrate.

Please cancel Claim 10 without prejudice or disclaimer.

Please cancel Claim 11 without prejudice or disclaimer.

Please cancel Claim 12 without prejudice or disclaimer.

Please cancel Claim 13 without prejudice or disclaimer.

Please cancel Claim 14 without prejudice or disclaimer.

Please cancel Claim 15 without prejudice or disclaimer.

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Please cancel Claim 16 without prejudice or disclaimer.

Q 3 9. (Amended) A thermally operated optical switch for use in directing a beam of light to at least one receptor, said thermally operated optical switch comprising:
a substrate;
an array of reflective surfaces; and
a plurality of cantilever thermal actuators, each cantilever actuator having a fixed end affixed to the substrate and having a free end to which an associated reflective surface is attached such that each reflective surface has a single associated actuator, and wherein each actuator has a cantilevered arm made from a material having a thermal expansion property, each arm having an upper surface and a lower surface and having a layer of material having a different thermal expansion property on a portion of at least one of these surfaces;

wherein each reflective surface is attached such that it is substantially perpendicular to the substrate.

Please cancel Claim 18 without prejudice or disclaimer.

Please cancel Claim 19 without prejudice or disclaimer.

Q 4 10. 20. 9 (Amended) The thermally operated optical switch of Claim 17 wherein cantilevered arm has an air gap between its top and bottom surfaces.

11. 21. 9 (Amended) The thermally operated optical switch of Claim 17 wherein each cantilevered arm is made from a material selected from the group of single crystal silicon, polycrystalline silicon dioxide, or silicon nitride.

10/22. (Amended) The thermally operated optical switch of Claim 17 wherein the arm has a layer on each of the top and bottom surfaces and the layers have the same thermal expansion property.

A4 13/23. (Amended) The thermally operated optical switch of Claim 17, wherein the arm has a layer on each of the top and bottom surfaces and the layers have different thermal expansion properties.

14/24. (Amended) The thermally operated optical switch of Claim 17 wherein the layers are made from a metallic material.

Please cancel Claim 25 without prejudice or disclaimer.

Please cancel Claim 26 without prejudice or disclaimer.

Please cancel Claim 27 without prejudice or disclaimer.

Please cancel Claim 28 without prejudice or disclaimer.

Please cancel Claim 29 without prejudice or disclaimer.

Please cancel Claim 30 without prejudice or disclaimer.

Please add Claims 31 - 42 as follows:

A5 1/31. (New) The system of Claim 1, wherein the application of electrical or heat energy to one of said thermal actuators will move said reflective surface into the path of the selected light beam so that the selected light beam will be directed to the light beam receptor.

8/32. (New) The system of Claim 1, wherein the reflective surface is rigidly attached to the arm.

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~~33~~. (New) The system of Claim ⁹~~17~~, wherein the application of electrical or heat energy to one of said thermal actuators will move said reflective surface into the path of the selected light beam so that the selected light beam will be directed to the light beam receptor.

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~~34~~. (New) The system of Claim ⁹~~17~~, wherein the reflective surface is rigidly attached to the arm.

35. (New) A thermally operated optical switch for use in directing a beam of light to at least one receptor, said thermally operated optical switch comprising:

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a substrate;
an array of reflective surfaces; and
a plurality of cantilever actuators, each actuator having a pair of arms, each arm of the pair having a fixed end affixed to the substrate and having a free end to which an associated reflective surface is rigidly attached such that each reflective surface has a single associated actuator.

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~~36~~. (New) The switch of Claim 35, wherein the arms of each pair have different widths.

37. (New) The switch of Claim 35, wherein the arms of each pair have different lengths, such that one arm of each pair is located under the other arm of that pair.

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~~38~~. (New) The switch of Claim ¹⁰~~35~~, wherein each reflective surface is attached such that it is parallel to the substrate.